Fauquier County Chesapeake Bay TMDL Action Plan

1. Current Program and Existing Legal Authority

Fauquier County primarily utilizes its Stormwater Ordinance (Fauquier County Code of Ordinances Chapter 11, Stormwater Management and Erosion and Sediment Control) as its existing legal authority to ensure compliance with the Special Condition. The County is aided by the fact that only two sites (Auburn Middle School & Fauquier High School) contain off-site drainage areas that are covered by the County's MS4 Permit. Many of the sites are situated within the Town of Warrenton with whom the County has an inter-jurisdictional agreement.

2. New or Modified Legal Authority

No new legal authorities are required for permit compliance.

3. Means and Methods to Address Discharges From New Sources

The County adheres to the Virginia Stormwater Management Program (VSMP) regulations for the implementation of post-development stormwater management facilities. The County is aided by the fact that the drainage areas to the County MS4 sites are largely built-out, leaving the County as the most likely land disturber within the MS4 drainage area.

4. Estimated Existing Source Loads and Calculated Total Pollutant of Concern (POC) Required Reductions

Site	2009 Site Acreage		2009 Off-Site Urbanized Drainage Acreage within County MS4 Permit		2009 Total Acreage		Total Acreage
	Pervious	Impervious	Pervious	Impervious	Pervious	Impervious	
Auburn Middle (Pot)	32.294	7.161	251.589	45.862	283.882	53.023	336.905
Alice Jane Childs Bldg (Rap)	4.581	2.697	0.000	0.000	4.581	2.697	7.278
CM Bradley Elem(Pot)	14.957	4.335	0.000	0.000	14.957	4.335	19.292
Brumfield Elem/Taylor Mid (Pot)	33.562	11.600	0.000	0.000	33.562	11.600	45.162
Fauquier High (Rap)	73.594	19.986	8.603	2.403	82.197	22.389	104.586
Fleet Maint /Warrenton Mid (Rap)	12.259	10.202	0.000	0.000	12.259	10.202	22.461
PB Smith Elem (Pot)	20.888	4.744	0.000	0.000	20.888	4.744	25.632
Vint Hill Village Green (Pot)	27.103	5.168	0.000	0.000	27.103	5.168	32.271
2009 Total (Rappahannock)					82.197	22.389	104.586
2009 Total (Potomac)					397.232	91.770	489.002
Total							593.587

Table 2b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2					
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Est Total POC Load Based on 2009 Progress Run	
Regulated Urban Impervious	Nitrogen	78.871	16.86	1,329.759	5,160.306
Regulated Urban Pervious		380.392	10.07	3,830.547	
Regulated Urban Impervious	Phosphorus	78.871	1.62	127.770	283.731
Regulated Urban Pervious		380.392	0.41	155.961	
Regulated Urban Impervious	Total Suspended Solids	78.871	1,171.32	92,382.756	159,255.663
Regulated Urban Pervious		380.392	175.8	66,872.907	

Table 2c: Calculation Sheet for Estimating Existing Source Loads for the Rappahannock River Basin *Based on Chesapeake Bay Program Watershed Model Phase 5.3.2					
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Est Total POC Load Based on 2009 Progress Run	
Regulated Urban Impervious	Nitrogen	35.288	9.38	331.001	859.857
Regulated Urban Pervious		99.037	5.34	528.857	
Regulated Urban Impervious	Phosphorus	35.288	1.41	49.756	87.390
Regulated Urban Pervious		99.037	0.38	37.634	
Regulated Urban Impervious	Total Suspended Solids	35.288	423.97	14,961.024	20,508.076
Regulated Urban Pervious		99.037	56.01	5,547.052	

Table 3b: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the Potomac River Basin *Based on DEQ Guidance Memo 15-2005					
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	Second Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required Second Permit Cycle (lbs)	
Regulated Urban Impervious	Nitrogen	78.871	0.60696	47.871	139.804
Regulated Urban Pervious		380.392	0.24168	91.933	
Regulated Urban Impervious	Phosphorus	78.871	0.10368	8.177	12.700
Regulated Urban Pervious		380.392	0.01189	4.523	
Regulated Urban Impervious	Total Suspended Solids	78.871	93.71	7,390.620	9,731.172
Regulated Urban Pervious		380.392	6.153	2,340.552	

Table 3c: Calculation Sheet for Determining Total POC Reductions Required During this Permit Cycle for the Rappahannock River Basin *Based on DEQ Guidance Memo 15-2005					
Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	Second Permit Cycle Required Reduction in Loading Rate (lbs/acre)	Total Reduction Required Second Permit Cycle (lbs)	
Regulated Urban Impervious	Nitrogen	35.288	3.3768	119.160	131.853
Regulated Urban Pervious		99.037	0.12816	12.693	
Regulated Urban Impervious	Phosphorus	35.288	0.09024	3.184	4.276
Regulated Urban Pervious		99.037	0.01102	1.091	
Regulated Urban Impervious	Total Suspended Solids	35.288	33.92	1,196.882	1,391.029
Regulated Urban Pervious		99.037	1.96035	194.147	

5. Means and Methods to Meet the Required Reductions and Schedule

As of June 30, 2020, no reductions had yet been achieved through credit purchases, infrastructure retrofits or new infrastructure. A table displaying potential green infrastructure improvements attached. The specific combination of improvements has not been determined, however, the final improvements will meet the required reductions. A constructed wetland at James Brumfield Elementary School has been partially funded through a grant from the National Fish and Wildlife Foundation. Construction was delayed due to the current pandemic but has begun as of the Fall of 2020.

Grant funding has also been secured to aid in the design and construction of a facility at Fauquier High School through the Chesapeake Bay Foundation as well as the National Fish and Wildlife Foundation. Design and construction of this project will likely occur in 2021-22.

FY2021 – Constructed Wetland at Brumfield Elementary School

FY2022 – Green Infrastructure (Likely Bioretention Filter rather than Constructed Wetland) at Fauquier High School

6. Means and Methods to Offset Increased Loads From New Sources Initiating Construction Between July 1, 2009 and June 30, 2014

No new construction initiated within MS4 area between 2009 and 2014.

7. Means and Methods to Offset Increased Loads From Grandfathered Projects That Begin Construction After July 1, 2014

There are no grandfathered projects.

8. A List of Future Projects, and Associated Acreage that Qualify as Grandfathered

There are no grandfathered projects.

9. An Estimate of the Expected Cost to Implement the Necessary Reductions

Table displaying estimated costs of potential green infrastructure improvements attached. The County has received updated cost estimates for the project at CM Bradley ($75,300), Fauquier High School ($127,596) and Vint Hill Village Green ($412,656).

10. Public Comments on Draft Action Plan

The draft Chesapeake Bay TMDL Plan was posted to the Fauquier County Department of Community Development's MS4 webpage the week of May 28th, 2018. The Department's Facebook page also was used to advertise that the draft was posted. A stakeholder meeting of impacted property owners was held on May 30th to provide an overview of the draft plan. No comments were received.

Site ID	Site Description	Watershed	Proposed Practice	RR or ST	Impervious Cover (acre)	Turf Cover (acre)	Forest Cover (acre)	Drainage Area (acre)	%IC	%Turf	%Forest	P (in)	Rv	Target Storage WQv (CF)	Available Practice Width (ft)	Available Practice Length (ft)	IWS (Yes/No)	Ponding Depth (in)	Dry Filter Depth (in)	Wet Filter Depth (in)	Gravel Depth (in)	Top Surface Area (SF)	Bottom Surface Area (SF)	Ponding Volume (CF)	Soil & Gravel Storage Volume (CF)	Max avail vol (CF)	Proposed Volume (CF)	% Water Quality Volume	TN Pollutant Load (lbs/yr)	TP Pollutant Load (lbs/yr)	TSS Pollutant Load (lbs/yr)	Runoff Depth Captured per	Total Nitrogen Removal (%)	Total Nitrogen Removal (lbs/yr)	Total Phosphorus Removal (%)	Total Phosphorus Removal (lbs/yr)	Total TSS Removal (%)	Total TSS Removal (lbs/yr)	Construction Cost $
F1 - A	Taylor Middle School	Potomac	Bioretention	RR	1.74	3.13	2.34	7.21	24%	43%	32%	1.00	0.34	8,834	50	90	No	12	24	0	12	4500	3696	4098	3326.40	7424	7424	84%	73.20	4.40	2773.05	1.18	62.2%	45.52	72.8%	3.20	78.0%	2,162.38	$181,618
F1 - B (Option 1)	Taylor Middle School	Potomac	Dry Swale	RR	0.11	0.41	0.18	0.70	16%	59%	26%	1.00	0.29	737	10	100	No	12	24	0	12	1000	376	688	338.40	1026	737	100%	6.95	0.37	216.57	1.82	66.5%	4.62	77.7%	0.29	83.4%	180.66	$14,733
F1 - B (Option 2)	Taylor Middle School	Potomac	Bioretention	RR	0.25	0.12	0.00	0.38	67%	33%	0%	1.00	0.71	967	15	90	No	12	24	0	12	1350	756	1053	680.40	1733	967	100%	5.49	0.46	316.56	1.06	60.7%	3.33	71.0%	0.33	76.1%	240.75	$23,654
F1 - C	Taylor Middle School	Potomac	Bioretention	RR	0.42	2.55	0.12	3.09	14%	83%	4%	1.00	0.31	3,506	30	180	No	12	24	0	12	5400	4176	4788	3758.40	8546	3506	100%	33.41	1.74	950.91	2.29	67.1%	22.43	78.4%	1.37	84.4%	802.27	$85,766
F2	James Brumfield Elementary School	Potomac	Filtering Practice	ST	4.81	2.90	0.34	8.05	60%	36%	4%	1.00	0.65	18,962			No	12	18	0	12	4600	4000	4300	3100.00	7400	7400	39%	112.14	9.03	6174.58	0.42	23.7%	26.55	37.2%	3.36	47.4%	2,923.80	$85,822
F4 - A	Warrenton Middle School (Dry Swale & Bioretention combo)	Potomac	Bioretention	RR	4.28	5.85	3.07	13.20	32%	44%	23%	1.00	0.41	19,871			No	12	18	0	12	5000	4500	4750	3487.50	8238	8238	41%	147.26	9.73	6285.53	0.53	46.3%	68.17	54.0%	5.25	57.9%	3,636.26	$201,531
F4 - B	Warrenton Middle School	Potomac	Regenerative Stormwater Conveyance	RR	0.01	0.74	0.22	0.97	1%	77%	23%	1.00	0.18	647	20	240	No	9	18	0		4800	3650	3169	1368.84	4538	647	100%	8.75	0.34	155.23	30.19	70.0%	6.13	80.0%	0.27	85.0%	131.95	$29,096
F6 - A	Alice Jane Childs Building	Rappahannock	Permeable Pavers	RR	1.25	0.18	1.12	2.55	49%	7%	44%	1.00	0.50	4,629	40	100	No			0	18	4000	4000	0	2400.00	2400	2400	52%	17.23	1.98	605.83	0.53	46.2%	7.96	53.8%	1.07	57.7%	349.43	$151,557
F6 - B1	Alice Jane Childs Building	Rappahannock	Bioretention	RR	0.21	0.01	0.03	0.25	84%	4%	12%	1.00	0.81	726	10	20	No	6	24	0	12	200	119	80	107.10	187	187	26%	2.11	0.30	89.98	0.25	27.8%	0.59	32.5%	0.10	34.8%	31.30	$4,575
F6 - B2	Alice Jane Childs Building	Rappahannock	Bioretention	RR	0.44	0.46	0.56	1.46	30%	32%	38%	1.00	0.37	1,967			No	6	24	0	12	684	500	296	450.00	746	746	38%	8.84	0.87	244.33	0.47	43.1%	3.81	50.3%	0.44	53.9%	131.59	$18,250
F7	Fauquier High School	Rappahannock	Constructed Wetlands	ST	10.48	28.55	25.12	64.15	16%	45%	39%	1.00	0.27	62,600	52	100	Yes	6	8	0	24	5200	4753	2488	792.17	3280	3280	5%	352.00	28.90	7484.38	0.09	6.3%	22.18	9.9%	2.86	12.6%	943.76	$40,574
F8 - A	CM Bradley	Potomac	Bioretention	RR	0.90	0.73	0.59	2.22	41%	33%	26%	1.00	0.47	3,770	15	100	No	6	12	0		1500	1164	666	291.00	957	957	25%	25.64	1.83	1228.59	0.29	31.6%	8.10	36.8%	0.67	39.4%	484.44	$23,412

	Elementary School																																							
F8 - B	CM Bradley Elementary School	Potomac	Bioretention	RR	0.47	0.35	0.00	0.82	57%	43%	0%	1.00	0.64	1,892	48	144	No	12	24	0	12	6912	5796	6354	5216.40	1157 0	1892	100%	11.42	0.90	608.92	1.12	61.4 %	7.02	71.9 %	0.65	77.0 %	469.13	$46,278
F9	Auburn Middle School - tree planting	Potomac		ST				0.00				1.00								0		0	0	0	0.00	0	0												
F10 - A	PB Smith Elementary School	Potomac	Bioretention	RR	0.84	0.37	0.21	1.42	59%	26%	15%	1.00	0.63	3,233			No	6	24	0	12	4418	3526	1986	3173.40	5159	3233	100%	19.05	1.54	1068.98	1.06	60.6 %	11.55	70.9 %	1.10	76.0 %	812.63	$79,079
F10 - B	PB Smith Elementary School	Potomac	Filtering Practice	ST	0.99	1.64	0.28	2.91	34%	56%	10%	1.00	0.45	4,768	45	84	No	6	18	0	12	3780	3402	1796	2636.55	4432	4432	93%	34.72	2.31	1471.70	1.23	36.7 %	12.75	57.7 %	1.34	73.5 %	1,081.12	$51,400
F11-A	Vint Hill Village Green	Potomac	Constructed Wetlands	ST	0.59	9.11	0.94	10.63	6%	86%	9%	1.00	0.24	9,435			Yes	6	8	0	24	19274	15000	8569	2500.00	11069	9435	100%	106.59	4.81	2363.90	4.43	40.0 %	42.63	65.0 %	3.12	80.0 %	1,891.12	$116,717
F11-B	Vint Hill Village Green	Potomac	Constructed Wetlands	ST	1.97	12.16	0.12	14.25	14%	85%	1%	1.00	0.32	16,534			Yes	6	8	0	24	44880	35000	19970	5833.33	2580 3	16534	100%	156.36	8.20	4458.73	2.31	39.2 %	61.24	61.7 %	5.06	78.5 %	3,498.12	$204,532